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09/863,128	05/22/2001	F. Patrick Doty	SD-8286	9592

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EXAMINER

SMITH, ZANDRA V

ART UNIT PAPER NUMBER

2877

DATE MAILED: 11/17/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/863,128

Applicant(s)

DOTY ET AL

Examiner

Zandra V. Smith

Art Unit

2877

*ML*

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-40 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 35-39 is/are allowed.
- 6) ☒ Claim(s) 1-3, 5-20, 22-31, 33, 34 and 40 is/are rejected.
- 7) ☒ Claim(s) 4, 21 and 32 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 435/61
- 4) ☐ Interview Summary (PTO-413) Paper No(s): \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3, 5, 8, 10, 12-16, 19, 22, 40 are rejected under 35 U.S.C. 102(b) as being anticipated by *Kishimoto (4,093,562)*.

As to **claims 1, 3, and 14-15**, Kishimoto discloses a polymeric composition for manufacture of secondary electron multiplier tubes and a method of manufacture, comprising:

a  $\pi$ -conjugated material, including  $\pi$ -conjugated polymers, (col. 3, lines 40-45) having an electrical resistivity of at least or greater than  $10^9$  ohm-cm (col. 3, line 50 and col. 5, lines 20-30).

As to **claims 2 and 22**, Kishimoto discloses everything claimed, as applied above, in addition the  $\pi$ -conjugated material comprises a mixture of  $\pi$ -conjugated materials (col. 3, lines 42-55).

As to **claims 5 and 16**, Kishimoto discloses everything claimed, as applied above, in addition the  $\pi$ -conjugated polymer includes derivative and combinations as claimed (col. 7, lines 22-30).

As to **claims 8 and 19**, Kishimoto discloses everything claimed, as applied above, in addition the  $\pi$ -conjugated polymer material is mixed with organic polymers (col. 3, lines 40-45).

As to **claim 10**, Kishimoto discloses everything claimed, as applied above, in addition metal is incorporated into the  $\pi$ -conjugated polymer structure (col. 3, line 47).

Art Unit: 2877

As to **claim 12**, Kishimoto discloses a polymeric composition for manufacture of secondary electron multiplier tubes and a method of manufacture, comprising:

electrodes (2, col. 3, line 62);

a  $\pi$ -conjugated material, including  $\pi$ -conjugated polymers, (col. 3, lines 40-45) having an electrical resistivity of at least or greater than  $10^9$  ohm-cm, between the electrodes (col. 3, line 50 and col. 5, lines 20-30); and

a power supply (4, col. 3, line 63).

As to **claim 13**, Kishimoto discloses everything claimed, as applied above, in addition the electrodes are metal conducting oxides (col. 3, lines 45-50).

As to **claim 40**, Kishimoto discloses a polymeric composition for manufacture of secondary electron multiplier tubes and a method of manufacture, comprising:

electrodes (2, col. 3, line 62);

a  $\pi$ -conjugated material, including  $\pi$ -conjugated polymers, (col. 3, lines 40-45), between the electrodes (col. 3, line 50 and col. 5, lines 20-30) wherein the electrodes and polymer is rolled up along their lengths to form a cylindrical sheet (see fig. 1); and

a power supply (4, col. 3, line 63).

Claims 24-29 and 33-34 are rejected under 35 U.S.C. 102(b) as being anticipated by

*Friend et al. (5,523,555)*.

As to **claim 24**, Friend discloses a photodetector device having a semiconductive conjugated polymer, comprising:

electrodes (4,8, col. 9, lines 5-10);

a  $\pi$ -conjugated polymer (6) between the electrodes; and

a power supply means (18) (col. 2, lines 50-60 and col. 4, lines 10-20).

As to **claim 25**, Friend discloses everything claimed, as applied above, in addition the electrodes are composed of metals (col. 4, lines 41-45).

As to **claims 26 and 29**, Friend discloses everything claimed, as applied above, in addition the  $\pi$ -conjugated polymer includes polyaromatic hydrocarbons, including anthracene or naphthalene (col. 5, lines 50-65).

As to **claims 27-28**, Friend discloses everything claimed, as applied above, in addition the  $\pi$ -conjugated polymer is selected from polymer derivative comprising poly(phenylenevinylene) (col. 7, lines 10-15).

As to **claims 33-34**, Friend discloses everything claimed, as applied above, in addition the  $\pi$ -conjugated polymer comprises aluminum (col. 4, lines 45-50).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 30-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Friend et al.* (5,523,555) in view of *Heeger et al.* (5,504,323).

As to **claims 30-31**, Friend discloses everything claimed, as applied above, with the exception of the  $\pi$ -conjugated polymer mixed with organic polymers, however to do so is well known as taught by Heeger. Heeger discloses a dual function conducting polymer diode that includes the mixture of  $\pi$ -conjugated polymers with organic polystyrene (col. 5, line 60). It

would have been obvious to one having ordinary skill in the art at the time of invention to mix the  $\pi$ -conjugated polymer with organic polystyrene since polystyrene is a carrier polymer and will improve the durability and/or processibility of the  $\pi$ -conjugated polymer.

Claims 9 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Kishimoto (4,093,562)* in view of *Heeger et al. (5,504,323)*.

As to **claims 9 and 20**, Friend discloses everything claimed, as applied above, with the exception of the  $\pi$ -conjugated polymer mixed with organic polymers, however to do so is well known as taught by Heeger. Heeger discloses a dual function conducting polymer diode that includes the mixture of  $\pi$ -conjugated polymers with organic polystyrene (col. 5, line 60). It would have been obvious to one having ordinary skill in the art at the time of invention to mix the  $\pi$ -conjugated polymer with organic polystyrene since polystyrene is a carrier polymer and will improve the durability and/or processibility of the  $\pi$ -conjugated polymer.

Claims 6-7, 11, 17-18 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Kishimoto (4,093,562)* in view of *Friend et al. (5,523,555)*.

As to **claim 6 and 17**, Kishimoto discloses everything claimed, as applied above, in addition the  $\pi$ -conjugated polymer is composed of polymer derivatives. Kishimoto fails to specially disclose the derivative, however to do so is well known as taught by Friend. Friend discloses the use of poly(phenylenevinylene) (col. 7, lines 10-15). It would have been obvious to one having ordinary skill in the art at the time of invention to use a polymer derivative of poly(phenylenevinylene) because poly(phenylenevinylene) the films produces show little reaction with oxygen at room temperature and are stable out of air at high temperatures.

As to **claims 7 and 18**, Kishimoto discloses everything claimed, as applied above, with the exception of polyaromatic hydrocarbons, however to do so is well known as taught by Friend. Friend discloses the use of polyaromatic hydrocarbons (col. 5, line 65-68). It would have been obvious to one having ordinary skill in the art at the time of invention to provide a polymer with desired features to produce the desired electro luminescent effects.

As to **claim 11 and 23**, Kishimoto discloses everything claimed, as applied above, with the exception of the particular metal, however to do so is well known as taught by Friend. Friend discloses the use of aluminum in the polymer (col. 4, lines 45-50). It would have been obvious to one having ordinary skill in the art at the time of invention to include aluminum to provide conductivity.

#### *Allowable Subject Matter*

Claims 35-39 are allowable over the prior art of record.

Claims 4, 21 and 32 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: the prior art of record, taken alone or in combination, fails to disclose or render obvious, applying external stress to the polymer to change the physical properties, an array of wires embedded in a  $\pi$ -conjugated material, the array comprising a first set of parallel wires intersecting orthogonally with a second set of parallel spaced apart wires, or the  $\pi$ -conjugated polymer having a C:H ratio and density equal to that of human skin, in combination with the rest of the limitations of the claims.

Art Unit: 2877

***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

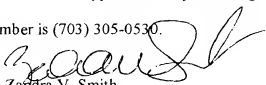
***Okube et al. (4,910,149) and Sariciftci et al. (5,454,880).***

***Fax/Telephone Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Zandra V. Smith whose telephone number is (703) 305-7776. The examiner can normally be reached on 8:00 a.m. - 4:30 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank G. Font can be reached on (703)308-4881. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-0530.

  
Zandra V. Smith  
Primary Examiner  
Art Unit 2877